

Appln No. 09/642,190

Amdt date June 4, 2004

Reply to Office action of March 10, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A vacuum fluorescent display comprising:

a pair of substrates spaced apart from each other with a predetermined distance, the substrates forming a vacuum cell by interposing a side glass;

an insulating layer positioned directly on one of the pair of substrates;

a plurality of filaments mounted within the vacuum cell to emit thermal electrons under the application of voltage;

a plurality of anode electrodes formed at one of the substrates, each anode electrode having a conductive layer positioned directly on the insulating layer and, a phosphor layer formed on the conductive layer; and

a control electrode surrounding each said anode electrode to accelerate or intercept the thermal electrons emitted from the plurality of filaments;

wherein the control electrode is formed with a single-layered structure and is positioned directly on an the insulating layer ~~on one of the pair of substrates.~~

2. (Original) The vacuum fluorescent display of claim 1 wherein the control electrode is formed with a metallic material having a high electrical conductivity.

**Appln No. 09/642,190**

**Amdt date June 4, 2004**

**Reply to Office action of March 10, 2004**

3. (Original) The vacuum fluorescent display of claim 2 wherein the control electrode is formed with a metallic material selected from the group consisting of stainless steel, platinum, silver and copper.

4. (Previously Presented) The vacuum fluorescent display of claim 1 wherein each said anode electrode is formed with a plurality of segments, and the control electrode surrounds each segment of each said anode electrode.

5. (Original) The vacuum fluorescent display of claim 4 wherein the control electrode is formed with a unitary part.

6. (Original) The vacuum fluorescent display of claim 5 wherein the control electrode comprises a main control part for accelerating and intercepting the thermal electrons, and a subsidiary control part for assisting the main control part in controlling the thermal electrons.

7. (Previously Presented) The vacuum fluorescent display of claim 6 wherein the main control part surrounds each segment of each said anode electrode, and the subsidiary control part is formed at a top end portion of the main control part with a unitary part.

8. (Previously Presented) The vacuum fluorescent display of claim 7 wherein the subsidiary control part is formed with an extension where the top end portion of the main control part is extended toward each segment of ~~the~~ each said anode electrode perpendicular to the main control part.

**Appln No. 09/642,190**

**Amdt date June 4, 2004**

**Reply to Office action of March 10, 2004**

9. (Original) The vacuum fluorescent display of claim 7 wherein the subsidiary control part is formed with a connector, the connector interconnecting top ends of the main control part such that the connector crosses each segment of the anode electrode.

10. (Previously Presented) The vacuum fluorescent display of claim 5 further comprising a subsidiary control electrode surrounding the control electrode.

11. (Original) The vacuum fluorescent display of claim 10 wherein the subsidiary control electrode is formed with a mesh grid.

12. (Previously Presented) The vacuum fluorescent display of claim 10 wherein the control electrode and the subsidiary control electrode is provided at some of the plurality of anode electrodes.

13. (Currently Amended) A vacuum fluorescent display comprising:

a pair of substrates spaced apart from each other with a predetermined distance, the substrates forming a vacuum cell by interposing a side glass;

a plurality of filaments mounted within the vacuum cell to emit thermal electrons under the application of voltage;

a plurality of anode electrodes formed at one of the substrates, each anode electrode having a conductive layer, a phosphor layer formed the conductive layer, and a periphery in a plane parallel to the plane of the one of the substrates; and

**Appln No. 09/642,190**

**Amdt date June 4, 2004**

**Reply to Office action of March 10, 2004**

a control electrode spaced apart from the phosphor layer of each said anode electrode in the plane parallel to the plane of the one of the substrates and surrounding each said anode electrode at the periphery of each said anode electrode to accelerate or intercept the thermal electrons emitted from the plurality of filaments;

wherein the control electrode has a single-layered structure.

14. (Previously Presented) The vacuum fluorescent display of claim 13 wherein the single-layered structure of the control electrode is a metallic material having a high electrical conductivity.

15. (Previously Presented) The vacuum fluorescent display of claim 14 wherein the single-layered structure of the control electrode is a metallic material selected from the group consisting of stainless steel, platinum, silver and copper.

16. (Previously Presented) The vacuum fluorescent display of claim 13 wherein each said anode electrode includes a plurality of segments, and the control electrode surrounds each segment of each said anode electrode.

17. (New) A vacuum fluorescent display comprising:  
a pair of substrates spaced apart from each other with a predetermined distance, the substrates forming a vacuum cell by interposing a side glass;

a plurality of filaments mounted within the vacuum cell to emit thermal electrons under the application of voltage;

**Appln No. 09/642,190**

**Amdt date June 4, 2004**

**Reply to Office action of March 10, 2004**

a plurality of anode electrodes formed at one of the substrates, each anode electrode having a conductive layer and a phosphor layer formed on a first portion of the conductive layer leaving a second portion of the conductive layer exposed to the plurality of filaments; and

a control electrode surrounding said second exposed portion of the conductive layer.

18. (New) The vacuum fluorescent display of claim 17 wherein the control electrode is formed with a metallic material having a high electrical conductivity.

19. (New) The vacuum fluorescent display of claim 18 wherein the control electrode is formed with a metallic material selected from the group consisting of stainless steel, platinum, silver and copper.